Measuring Desire for Control in the Childbirth Environment

BY

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ABSTRACT

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The experience of childbirth has demonstrable impact on a new mother's postpartum adjustment. The substantial prevalence of negative childbirth experiences has lead researchers to investigate factors characterizing positive versus negative experiences. Researchers have questioned whether congruence between desired and perceived control influences childbirth satisfaction. The current study was designed to develop an instrument to assess desire for control. Items were modified from three original instruments and administered to pregnant women recruited from outpatient obstetric clinics and online. Twenty-one items loaded on a single common factor reflecting desire for behavioral control in the childbirth setting. Four items loaded on a second factor reflecting desire for information. The 21 item scale (DCCh-B) discriminated from self-efficacy and health locus of control. Women who reported higher desire for control were more likely to choose non-traditional caregivers and labor support. Results of these preliminary analyses are presented with recommendations for future development of the DCCh-B.

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Dedication

To my family, for being ever my best teachers.

To my three dearest friends, Sarah, Amanda and Carolan,

for continuing to sustain and inspire me.

CHAPTER 1

Measuring Desire for Control in the Childbirth Environment

Background and Significance: A Theoretical Approach to Understanding the Childbirth Experience

Although labor and delivery typically conclude within a single day, many women clearly remember this experience in vivid detail, even decades later (Simkin, 1991, 1992). Preparing for the birth of a child creates expectations, hopes and preferences for how the event should unfold. For some women the ideal childbirth may mean a natural, drug-free experience, for others it may mean a planned Cesarean section, or an early epidural. Many women wish to be involved with medical decisions during labor and delivery and others wish to cede control to competent medical professionals. Given a healthy outcome, achieving the desired birthing experience may determine how satisfied a mother will be with the birth of her child. This approach to understanding the childbirth experience may be best understood in terms of a "person-environment fit" (PE) model. In general PE models suggest that the degree of match between a person and her environment determines satisfaction of needs and subsequent positive adjustment (Reich, Zautra & Manne, 1993). Such a paradigm proves useful as a guiding theory in the study of the childbirth experience.

There are many factors that affect a woman's memory of the event and contribute to childbirth satisfaction; one important determinant may be the "fit" between a woman's desire for control within the birth experience and the degree to which she perceives that the environment was congruent with her goal. This study is

the first in a line of research that will evaluate the psychometric properties of measures of control within the birth environment. The objective of the current study was to use exploratory factor analysis to develop a measure of desire for control in childbirth.

The Childbirth Experience and Postpartum Adjustment

The quality of the birth experience may be an important determinant of a mother's physical and emotional well-being during the postpartum period, how the new parents bond with their infant, as well as to the relationship among the members of the new family (DiMatteo, Kahn, & Berry, 1993; Kendall-Tackett, 2005; Quine, Rutter & Gowen, 1993). A woman's negative experience of birth can contribute to postpartum depression (Kendall-Tackett, 2005) or less commonly to Post-Traumatic Stress Disorder (PTSD) (Ayers & Pickering, 2001; Czarnocka & Slade, 2000). A national survey focusing exclusively on contemporary childbirth experiences in the United States documented that 4-12% of women were dissatisfied with various aspects of their medical care including the quality of medical caregiver support (Declercq, Sakala, Corry, Applebaum, & Risher, 2002). These findings are roughly consistent with estimates from other countries, suggesting a need for increased understanding of what constitutes a positive birth experience (Brown & Lumley, 1994; Waldenstrom, Borg, Olsson, Skold, & Wall, 1996; Waldenstrom, Hildingsson, Rubertson, & Radestad, 2004).

In light of the consequences of negative birth experiences, maternal health researchers have called for improvements in women's childbirth experiences and

postpartum health (Brown & Lumley, 1994). After a careful evaluation of the birth experience, policy and practice guidelines should be reviewed with the goal of identifying physiologic, medical and psychosocial factors that may result in improved care and increased maternal satisfaction (Waldenstrom, Borg, Olsson, Skold, & Wall, 1996). Consistent with these recommendations, individualized care may be an appropriate practical derivative of person-environment fit theory, whereby treatment is tailored to meet a patient's physiological and psychological needs.

A Comprehensive Model of Maternal Satisfaction

Throughout the last decade and a half, research has identified psychosocial, medical, and demographic correlates of satisfaction with the birth experience. Some of the factors found to influence satisfaction include social support, information about the birthing experience, pain, childbirth education program participation, perceived control and autonomy, expectations, anxiety, birth environment, medical interventions, duration of labor, financial pressures, unexpected medical complications, medical care, parity, and age (Brown & Lumley, 1994; DiMatteo et al., 1993; Gray, 2005; Klaus, Kennell, Klaus, 1993; Kyman, 1991; Quine et al., 1993; Seguin et al., 1989; Waldenstrom et al., 1996). Table 1 summarizes findings from these and other studies. Overall, the literature indicates that four psychosocial factors have remained consistently important over time: support, control, expectations and caregiver sensitivity.

No study to date has organized predictors of maternal satisfaction with childbirth into a comprehensive biopsychosocial model. Although researchers have

Table 1. Correlates of Maternal Satisfaction with Childbirth and/or Maternity Care

Study	*Demographic Variables*			*Psychosocial Variables*			
	Age	SES	Parity	Quality of Caregivers	Control/ Information	Support	Unexpected pain/emotional reactions
Drew, Salmon, & Webb (1989)[a]	**na**	**na**	**na**	**na**	**X**	**X**	**na**
Seguin, Therrien, Champagne & Larouche (1989)[b]	**na**	**ns**	**ns**	**X**	**X**	**na**	**na**
Green, Coupland, & Kitzinger (1990)[a]	**na**	**na**	**X**	**na**	**X**	**na**	**na**
Kyman (1991)[a]	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Quine, Rutter & Gowen (1993)[a]	**X**	**X**	**na**	**na**	**X**	**X**	**na**
DiMatteo, Kahn, & Berry (1993)[a]	**na**	**na**	**na**	**na**	**X**	**X**	**X**
Brown & Lumley (1994)[b]	**ns**	**ns**	**X**	**X**	**X**	**na**	**X**
Waldenstrom, Borg, Olsson, Skold, & Wall (1996)[a]	**ns**	**na**	**ns**	**X**	**X**	**X**	**X**
Waldenstrom (1999)[a]	**ns**	**na**	**X**	**X**	**X**	**X**	**na**
Waldenstrom (2004)[a]	**X**	**na**	**X**	**X**	**X**	**X**	**na**

a = Study assessed satisfaction with childbirth experience
b = Study assessed satisfaction with maternity care
na: Not assessed; ns: Not significant

Table 1. Continued

Study	*Medical Variables*		
	Complications	Obstetrical Interventions	Pain/Duration of Labor
Drew, Salmon, & Webb (1989)[a]	**na**	**ns**	**na**
Seguin, Therrien, Champagne & Larouche (1989)[b]	X	**ns**	X
Green, Coupland, & Kitzinger (1990)[a]	**na**	X	**na**
Kyman (1991)[a]	**na**	X	**na**
Quine, Rutter & Gowen (1993)[a]	**na**	**na**	**na**
DiMatteo, Kahn, & Berry (1993)[a]	**na**	**na**	**na**
Brown & Lumley (1994)[b]	**na**	X	**ns**
Waldenstrom, Borg, Olsson, Skold, & Wall (1996)[a]	**na**	X	X
Waldenstrom (1999)[a]	X	X	X
Waldenstrom (2004)[a]	X	X	X

a = Study assessed satisfaction with childbirth experience
b = Study assessed satisfaction with maternity care
na: Not assessed; ns: Not significant

surveyed women about their childbirth experiences and identified a number of relevant factors, little is known about the relationships among the psychosocial predictors or how they interact with medical variables and birth outcomes. Although a test of the full model is well beyond the scope of this study, the current study was informed by a model that suggests childbirth satisfaction is predicted by four psychosocial factors: social and emotional support, whether mother's expectations for the labor and delivery were congruent with her experience (e.g., unplanned cesarean, unexpected complications), the quality of caregiver-patient relationship, and congruence between desired and perceived control, as well as the objective circumstances of the labor and delivery (e.g., length of labor, use of medical interventions, complications, and birth outcome). As shown in Figure 1, the match between desire for control and perceived control may in part determine satisfaction with the childbirth. However, many of the constructs identified in Figure 1, including desire for control and perceived control, have not been adequately operationalized or measured. Appropriately tested scales that assess desired and perceived control are needed before it is possible to test the utility of this model.

Control Beliefs

Although previous research has suggested that a sense of control may be important to the labor and delivery experience (Brown & Lumley, 1994; Gray, 2005; Hodnett & Simmons-Tropea, 1987; Seguin et al., 1989; Waldenstrom et al., 1996), a theoretical understanding of the relationship between control and the childbirth experience has not been well developed. Therefore, it is necessary to review two

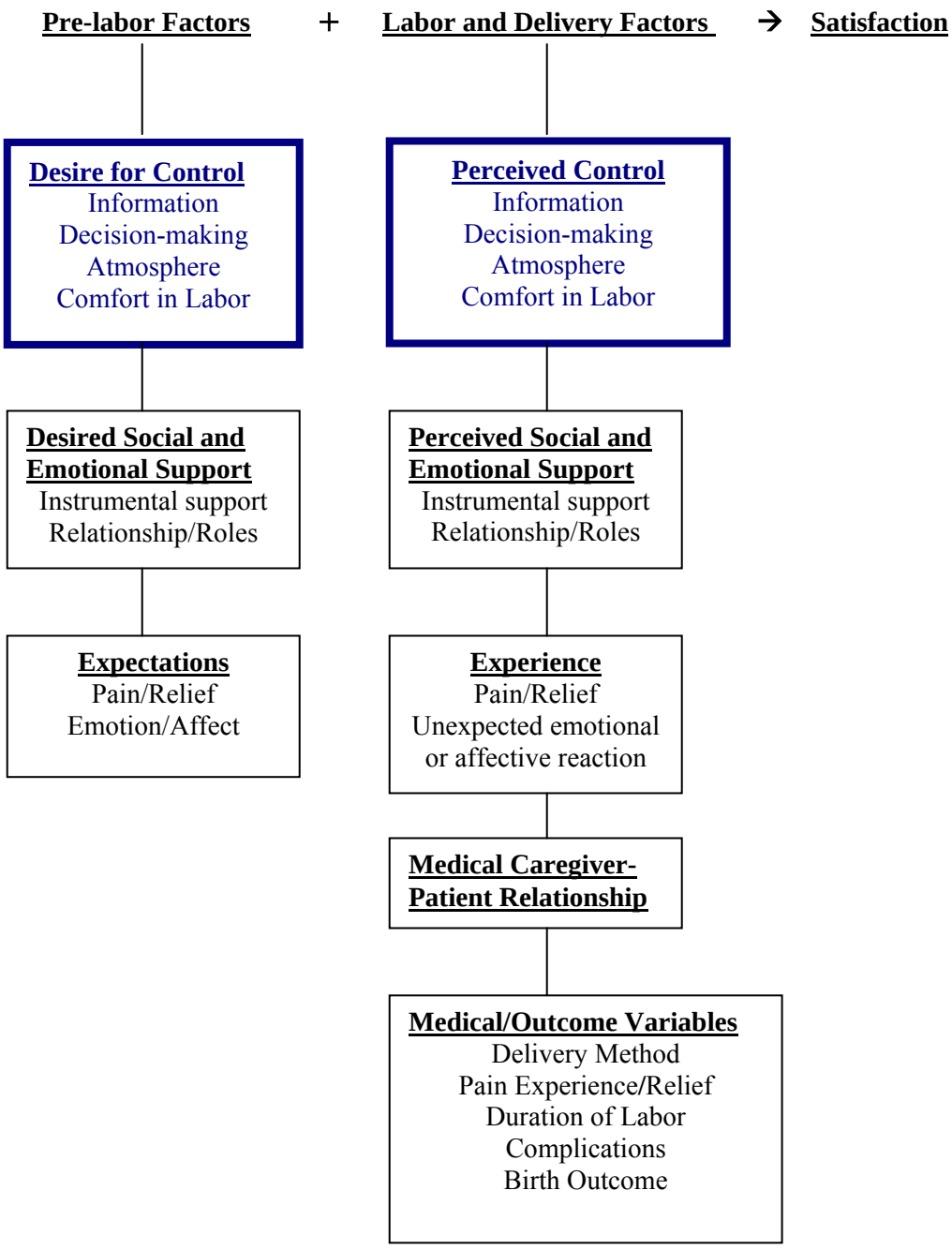

Figure 1. Biopsychosocial Predictors of Maternal Satisfaction with Childbirth

important constructs: locus of control and desire for control, which have been operationalized in broader literature and applied in health-related contexts. Past research will be presented as a guide for how control beliefs should be explored and measured in relation to the management of childbirth. The following sections will focus on how these constructs have been defined; briefly examine the history of how they have been explored in research, and how each contributes to satisfaction with the childbirth experience.

Locus of Control: Theory and Research

The review will begin by examining locus of control (LOC), the only operationally defined control construct to have been explored in childbirth satisfaction research. LOC is one of the oldest constructs in the empirical research of psychology and health. It has been applied extensively in health care research. Although locus of control is not the focus of the current study, it's theoretical development and application provides an outstanding framework for how perceived control and desire for control should be operationalized and applied to the childbirth setting.

Walker (2001) provides a detailed analysis of the components of locus of control and related historical research. LOC represents a set of beliefs reflecting the extent to which an individual attributes outcomes of situations to her own actions or to external factors. The earliest conceptualizations of locus of control originate within social learning theory, where Julian Rotter (1975) explored what he termed "perceived internal versus external control of reinforcement" as a personality

variable. The development of LOC theory is also linked to social psychology through its roots in attribution theory (e.g., Heider, 1944; Kelley, 1973). Rotter, however, is most commonly associated with the origin of this concept because of his development of the Internal/External Scale. Rotter did not use the term "Locus of Control;" however, he describes individuals' perceptions of reinforcement as contingent on one of two sources: their own behavior and chance/experimenter control. It is important to note that Rotter's control beliefs were conceptualized as an expectancy construct rather than a motivational construct.

Locus of Control in Health

Similar to the original definition of LOC, locus of control in health reflects the extent to which an individual attributes health related outcomes to internal or external forces. Early research on locus of control and health suggested that individuals with high internality were more likely to engage in healthful behaviors and adapt better to debilitating illnesses whereas individuals high in externality were more susceptible to mental health problems (Strickland, 1978). Not long after it was first utilized in this fashion, it became clear that the original Internal/External Scale used to measure LOC beliefs was limited in its ability to explain health-related behavior. Ultimately, LOC as a unidimensional construct was discarded in favor of the three-factor Health Locus of Control (HLC).[1]

[1] It is easy to confuse references to LOC, HLC and MHLC. In this paper, LOC refers to the unidimensional Locus of Control construct, HLC refers to the multidimensional construct of Health Locus of Control, and MHLC refers to the scale which measures multidimensional health locus of control beliefs. The term 'locus of control' is also used to refer to an individual's actual source of outcome attribution, but does not necessarily reflect the unidimensional construct. In these cases, the abbreviation, 'LOC' will not be used.

Using the three factor model, researchers theorized that an individual could attribute health outcomes to internal mechanisms, powerful others or chance. Wallston, Wallston and DeVellis (1978) operationalized these three dimensions with the Multidimensional Health Locus of Control scales (MHLC). More recently a study established the factor structure of the condition-specific form of the MHLC resulting in four subscales: Internality, Physician, Powerful (Other) People (i.e. non-physician), and Chance (Form C: Wallston, Stein, & Smith, 1994). The MHLC has been extremely useful in the study of many health issues including adjustment to diabetes, pain, cancer, and chronic illness (see for review, Walker, 2001), and recently, in the study of childbirth (Gray, 2005). Surprisingly, the MHLC has been less useful in studying some health related behaviors, perhaps because health maintenance can be beyond the control of the individual, outcomes can be unpredictable, the individual may not strongly value health, and because HLC is not necessarily indicative of desire for control (Walker, 2001).

Although HLC reflects a patient's internality/externality (whether she believes outcomes are under her control or others' control), it does not necessarily reflect how much control the patient wants or how much personal control the patient perceives in any given situation. Herein lies an important distinction between health locus of control, desire for control, and perceived control. Locus of control is described as an expectancy construct whereas desire for control is described as a motivational construct. A patient may believe that health outcomes are the result of internal mechanisms, but not have the desire to exercise control. Conversely, a patient may

have an internal locus of control and a high desire for control, but not perceive that she has control in a given medical situation.

Given these nuances, it is not surprising that HLC has not been found to be a robust predictor of childbirth satisfaction. In two existing studies examining HLC in childbirth, childbirth satisfaction was predicted by perceived control but not HLC (Knapp, 1996; Waldenstrom, 1999). Interestingly, another longitudinal study of 115 pre- and post-vaginal and cesarean births found that depression and physical symptoms were inversely related to high levels of both perceived personal control *and* perceived physician control (Gray, 2005). The author concluded that the match between situational and personality factors might lead some psychologically healthy individuals to feel more comfortable by ceding control to others.

In contrast with HLC, perceived control has been found to be a consistent predictor of childbirth satisfaction (Brown & Lumley, 1994; DiMatteo et al., 1993; Gray, 2005; Kendall-Tackett, 2005; Knapp, 1996; Kyman, 1991; Quine et al., 1993; Seguin et al., 1989; Waldenstrom et al., 1996). Numerous studies suggest that a higher degree of perceived control contributes to a positive experience of labor and birth as well as less postpartum psychological distress. Given these data, it would be reasonable to conclude that one way to improve maternity care would be to enhance women's sense of control, encourage them to make most/all choices during labor, and to be as involved in the laboring process as possible, barring complications. However, researchers (e.g., Gray, 2005; Knapp, 1996; Waldenstrom, 1999) have *also*

questioned whether congruence between desire for control and perceived control might explain more variance in maternal satisfaction than perceived control alone.

Desire for Control: Theory and Research

Perceived control might not be welcome for all women. Some women may prefer a medical professional to take charge of decisions in childbirth. Person-environment fit theory suggests that satisfaction is determined by congruence between the birth environment and a patient's needs or preferences. A preset standard dictating that desire for control is inherent in all individuals is therefore contrary to the very foundation of person-environment fit theory. Accordingly, another factor thought to be important to health-related outcomes is desire for control.

Whereas perceived control is defined as the ability of an individual to influence her environment in a given situation, desire for control reflects an individual's *motivation* to act in such a way as to influence the environment. As noted earlier, an individual can be highly motivated to change her environment but be unsuccessful in achieving said change. Conversely, an individual can lack the motivation to act but be placed in a situation that requires personal control. Early research on the desire for control questioned whether control is fundamentally, intrinsically motivating or whether it is only desired in specific situations (Walker, 2001).

Situations in which individuals believe they have control are not necessarily reported as more favorable or less irritating than those in which they do not have control (Geer, Davison & Gatchel, 1970). The experience of stress in uncontrollable

situations may be a function of whether the lack of control is attributed to personal incompetence or situational factors (Wortman, Panciera, Shusterman, & Hibscher, 1976). In other words, low control situations may not be perceived as stressful unless lack of control is attributed to personal failure. If lack of control is construed as situation-specific, low-control may not be perceived as stressful. These findings suggest the possibility that circumstances exist in which low levels of control are less stressful than high levels of control.

A review of the literature identified conditions of the health care environment that are unlikely to be correlated with a desire for control (Walker, 2001). For instance individuals may have a low desire for control if achieving control is difficult, if information is limited, if attempts at gaining control have resulted in failure, if control is not in accordance with the individual's coping style, and finally, if the individual simply prefers to not have control. This review of literature emphasized that there may be contextual problems with health care that preclude a desire for control or make it difficult to identify a patient's desire for control.

Similar to other health-related contexts, childbirth is a process in which decision-making requires effort. Many decisions (e.g., need for pain medication or labor augmentation) may need to be made, or at least reconsidered, quickly, and sometimes in the absence of complete information. The final point is particularly important when considering the childbirth process, because involvement in decision-making might be more stressful for a woman who prefers that others (e.g., health professionals) make those decisions, or who finds that the intense emotional and

painful aspects of labor interfere with making decisions on her own. Therefore, it can be expected in the childbirth setting that lack of control or choice will not always be stressful for the patient, and that a patient's personal preference may be to cede control to others.

Desire for Control in Childbirth

The childbirth context is unique in that most women have specific expectations and hopes about the process that are not often a factor in other health care situations. Most women have a strong emotional investment to the process of labor and delivery, and not just in the final outcome: the birth of a healthy infant. Furthermore, childbirth may offer greater expectations for exercising control than most other medical situations. Thus, desire for control may be more pertinent to patient satisfaction than for many other medical procedures.

Desire for control in the childbirth context can be thought of as an individual's *motivation* to influence her birth environment. Although desire for control is likely to be an important predictor of childbirth satisfaction, this construct has not been measured directly and has been mis-specified in several studies.

As noted earlier, higher perceived control was significantly correlated with lower levels of depression and fewer negative physical symptoms even when the woman perceived either her doctor or powerful other as being in control (Gray, 2005). This indicates that situational or personality factors might lead otherwise mentally healthy individuals to transfer control to medical professionals. In other

words, positive psychological outcomes might be dependent not on absolute control but on the fit between desire for control and the environmental context.

Surprisingly, models of person-environment fit have not been widely used in the birth outcome literature. However, a study of Rheumatoid Arthritis (RA) patients guided by person-environment fit theory may offer a prototype for research in this area. This study examined characteristics of communication between women with RA and their spouses (Reich et al., 1993). Results indicated that middle-aged women who scored lower on trait internality experienced significantly less psychological distress when their spouses exerted more control and significantly more distress when their spouses exerted less control. This may indicate that congruence between a person and her environment may facilitate communication and negotiation in the service of meeting health related needs, thereby reducing distress.

Extrapolating from the work of Reich and colleagues (1993), it is easy to see how this model could be applied to the context of childbirth. However, there is little evidence that congruence between trait internality and perceived control predicts birth outcomes. For instance, Knapp (1996) examined the combined effects of internality and perceived control on satisfaction with the birth experience. She argued that internally oriented individuals would have a preference for personal control and adapt better to situations in which they have control, whereas externally oriented individuals would adapt better to situations where control was imposed on them. Perceived control explained 46% of the variance in satisfaction. However, trait internality did not predict childbirth satisfaction. Similarly, Waldenstrom (1999)

surveyed the childbirth experiences of 1111 women. Again, perceived control or involvement in the birth process predicted a positive experience, and was in fact the strongest predictor of satisfaction (Waldenstrom, 1999). However, locus of control did not explain a significant portion of the variance. These data may indicate that issues related to control may be very different in childbirth than in other health related contexts, such as managing chronic illnesses.

An important component of both studies described above is that trait internality was used as a proxy for desire for control. Desire for control is related to internality, but the constructs are not isomorphic. Researchers examined the relationship between expectancies for control of health care and desire for control of health care in a sample of 172 pregnant women recruited from private and medical center-based obstetrician's offices (Wallston et al., 1983). The study utilized a two-part measure of desire for control. Results demonstrated significant but smaller correlations of .20 and .26 between IHLC and desire for control of health care. These data indicate that only 4% of the variance in desire for control and internality is shared. Desire for control should therefore be examined in relation to perceived control and satisfaction as its own construct.

To my knowledge, only one study has directly assessed desire for control in childbirth. Desire for control was assessed using a single Likert scale item: "How important is it for you to take part in decisions regarding your own care?" (Waldenstrom, 1999). This question does not seem to be a particularly sensitive measure of desire for control in the labor and delivery process and it is not surprising

that it was unrelated to childbirth satisfaction. It could reasonably be expected that *all* women would say that it was important for them to take part in decisions regarding their own care; although, the author does not report data that could be used to refute or support this assumption.

Although it may be concluded that congruence between locus of control and perceived control is not the best fit as a predictor of childbirth satisfaction, the same cannot necessarily be concluded about congruence between desire for control and perceived control. Perhaps personality traits (which are generally thought to be stable) do not translate into desire for control during emotionally intense experiences such as childbirth. We must instead refocus the "person" half of the person-environment fit model to include a situation specific assessment of patient needs and desires.

In addition to understanding how a woman wishes to interact with health care professionals during labor and delivery, desire for control may also predict a priori decisions regarding seeking information about pregnancy, the labor and delivery environment and the medical management of birth. Prior to the birth itself, women who are high in desire for control are likely to seek information about pregnancy and birth from online sources, converse with other expectant mothers using chat rooms and choose childbirth preparation methods that encourage active personal participation in the childbirth process. Moreover, desire for control should also differentiate women who choose non-traditional health care professionals such as midwives as their medical caregivers, or support from a doula. Making these choices is not synonymous with desire for control; however, these options often are

associated with encouraging the mother to take control of her own childbirth environment.

Measuring Desire for Control of Health Care

There are both general and health care related measures of desire for control. One general scale, the Desirability for Control scale, was designed to measure individual differences in the motivation to control the events in one's life (Burger & Cooper, 1979). This scale contains some generally worded items (e.g. I try to avoid situations where someone else tells me what to do) as well as items that refer to particular areas of life (e.g. I enjoy political participation because I want to have as much of a say in running the government as possible). Some of the items may pertain to a health care transaction, but many are too general to be pertinent.

Measures of desire for control that have been designed specifically for use in health care settings include the Desire for Control of Health Care scale (DCON; Rye, Wallston, Wallston, & Smith, 1985) and the Krantz Health Opinion Survey (KHOS; Krantz, Baum, & Wideman, 1980). The DCON is a situation-specific measure of desire for control of health care processes with high alpha reliability. Items reflect an explicit preference for patient involvement (e.g. I want to have a say in what will be done to me). The DCON was designed to be adapted for use in a variety of health-related situations. The KHOS – an instrument with high alpha reliability contains items that express a particular view of patient participation in health care (e.g., Except for serious illness, it's generally better to take care of your own health than to rely on

professional help). The KHOS is divided into two subscales designed to measure desire for information (K-I) and behavioral involvement (K-B) respectively.

None of these instruments were explicitly designed to measure desire for control in childbirth and to date none have been adapted for that purpose. The resulting lack of specificity limits validity in a childbirth setting because of the fundamental difference between birth and most health care situations. That is, most health care situations involve treatment of disease, and the outcomes are generally medically determined. Conversely, childbirth is not a disease per se and its outcome is most often the result of a healthy, natural process.

A review of extant scales suggests that questions used to assess desire for control in childbirth have lacked sensitivity. Recall, Waldenstrom (1999) asked how important it was to patients to participate in medical decision-making. This question attempted to determine women's prenatal desire for control, but it may have been too broad to assess specific needs or desires in the childbirth setting. An adequate measure must include items specific to the childbirth setting in order to assess how much control a woman wishes to have in the labor/birth situation and how much control she wishes to transfer to trained medical professionals. Most women desire to take part in decisions regarding their own care but some take comfort in knowing that others (e.g., physicians) will tell them how their labor should be managed, provided that respect and consideration are maintained. A desire for control scale must identify and separate those who wish to participate in most aspects of the labor and care from those who prefer to cede control to medical caregivers. The scale should also take

into consideration that women at the extreme polarities in desire for control in childbirth are likely to be rare.

Summary and Purpose of Study

Most women look forward to childbirth with a sense of anticipation and expectations about how the event will unfold. Thus, one definition of satisfaction is the degree to which an experience matches a patient's needs and preferences. Past research has shown several factors to be crucial components of a woman's childbirth experience. Particularly, support, patient-caregiver relationship, expectancy/experience congruence, and perceived control are four dimensions that consistently appear as correlates of maternal satisfaction. Despite evidence that perceived control contributes to satisfaction, studies suggest that having control might not be desirable for some individuals. Whereas internality has not been found to predict maternal satisfaction, desire for control may be a more pertinent construct. However, desire for control has not been explored specifically in relation to the labor and birth experience.

It is proposed that the congruence between desire for control and perceived control would predict satisfaction with the birth experience. Unfortunately, the extant literature does not offer psychometrically valid and theoretically appropriate measures of childbirth satisfaction, perceived control or desire for control. The development of a measure of desire for control in the childbirth environment was the focus of the current study.

The purpose of the current study was to develop a brief, theoretically and psychometrically sound and empirically supported scale to assess desire for control within the childbirth environment. In accordance with Clark and Watson's (1995) suggestions for scale development, desire for control has been theoretically conceptualized and operationally defined. The literature reviewed in this paper has clarified the nature of the constructs of interest and distinguished them from related constructs (e.g. desire for control distinguished from internality). Clark and Watson emphasize the need for breadth of content in the initial pool of items (1995). As a first step in the scale development, the initial pool of items was adapted from several existing measures because these items have been shown to be reliable and valid indicators of the desire for control construct in other contexts. Discriminant validity was assessed by examining the relationship between desire for control in childbirth and related constructs, including self-efficacy as measured with the General Self-Efficacy Scale (GSE) and internal health locus of control as measured using Form C of the MHLC. Predictive validity was assessed by examining the relationship between desire for control and the choice of non-traditional medical professionals/location of birth, childbirth preparation, and the use of additional support such as a doula. Scales were administered to a heterogeneous sample in order to evaluate the full range of constructs as captured by each scale. Accordingly, the following hypotheses were tested:

1. It was hypothesized that desire for control in childbirth would be explained by a single common factor, desire for control, identified using exploratory factor analysis (maximum likelihood).
2. The resulting subscale of items would show high internal consistency.
3. Women who were recruited from the online website would be likely to report higher levels of desire for control.
4. Desire for control scores would show small correlations with scores on the GSE and MHLC – specifically, desire for control would show a small, positive correlation with the Internal subscale and small inverse correlations with the Physician, Powerful Others and Chance subscales.
5. Desire for control would be related to non-traditional childbirth choices such as choosing a midwife, labor support such as a doula, choosing an alternative birthing site, and choosing alternative childbirth preparation classes (e.g., Bradley, Lamaze or Hypnobirthing). In addition, MHLC-I was not expected to be related to these choices.

CHAPTER 2

Methods and Procedures

Participant Eligibility

Participants in this study were 225 women recruited from two outpatient obstetric clinics affiliated with the University of Kansas Medical Center (KUMC) (*n*=56), and a website that serves as a resource for families preparing for birth and the parenting role (Babycenter.com) *(n*=169). To be eligible, women were required to be currently pregnant, at least 18 years of age, and a fluent English speaker. Six patients from the outpatient clinic at KUMC were not approached because clinic staff identified these patients as monolingual Spanish speakers. All other antenatal patients were asked to participate. There was no way to be certain if online participants were fluent English-speakers. Only one clinic patient refused to participate. It was not possible to determine how many Babycenter.com subscribers chose not to participate.

Incomplete data. Of the 225 women who agreed to participate, 25 reported only demographic information (21 online, 4 clinic) and six participants recruited in the clinic failed to return the survey to the researcher. The 25 incomplete surveys were excluded from the final analysis. The final sample included 193 participants (148 online, 45 clinic).

Instruments

Participants completed a Prenatal Survey Packet, which included the Pregnancy Information Questionnaire (PIQ), the Desire for Control in Childbirth Scale (DCCh), the GSE, and Form C of the MHLC. The Pregnancy Information

Questionnaire asked participants to report demographic information and information about their pregnancy (See Appendix A). The DCCh consisted of 38 items given on a 6-point Likert scale. Items were taken from three original scales: the Krantz Health Opinion Survey (KHOS), Desirability for Control Scale and the Desire for Control of Health Care Scale (DCON)(Burger, 1992; Krantz et al., 1980; Wallston et al., 1983).

Krantz Health Opinion Survey (KHOS). This measure contains information and behavioral involvement subscales (See Appendix B). Sample items include, "It is better to rely on the judgments of doctors (who are the experts) than to rely on "common sense" when it comes to taking care of your own body" and "I usually don't ask the doctor or nurse many questions about what they're doing during a medical exam." The total scale had a Kuder-Richardson 20 reliability of .77 and had discriminant validity from Wallston's Health Locus of Control Scale and the Marlowe-Crowne Social Desirability Scale (Krantz, Baum & Wideman, 1980).

The Desirability for Control Scale. This is a general measure of desire for control (See Appendix C). Sample items include "I prefer a job where I have a lot of control over what I do and when I do it" and "I enjoy making my own decisions." Cronbach's alpha for the scale was .80 and the scale also had discriminant validity from Rotter's Internal-External Locus of Control Scale and the Marlowe-Crowne Social Desirability Scale (Burger & Cooper, 1979).

Desire for Control of Health Care Scale (DCON). This is a situation-specific measure of desire for control of health care processes (See Appendix D). Sample items include "I want to influence the kind of care I get" and "I want the doctors and

nurses to decide what is best for me." Alpha reliabilities have been estimated from .84-.87; the scale also demonstrated concurrent validity with the older Krantz Health Opinion Survey (Smith, Wallston, Wallston, Forsberg, & King, 1984).

General Self-Efficacy Scale (GSE). The GSE is a 10 – item measure of general self-efficacy (See Appendix E). Internal consistency (alpha) has been estimated at .82; the scale also has demonstrated construct validity where the GSE was positively correlated with positive affect (r = .40), IHLC (r = .23), and satisfaction with life (r = .26: Leganger, Kraft & Roysamb, 2000).

Multidimensional Health Locus of Control Scales (MHLC). Form C of the MHLC is an 18-item scale that measures expectancies and beliefs about control in health-related domains (See Appendix F). Form C contains four subscales that assess internal (6 items), physician (3 items), powerful others (3 items), and chance (6 items) locus of control. Alpha reliabilities for the subscales range from .71 to .87 (Wallston, Stein & Smith, 1994). Subscales in Form C have shown modest correlations with respective subscales on Form B, providing evidence of concurrent validity (Wallston, 2005).

Procedures

Clinic Sample. Patients were recruited by the clinic staff or primary investigator when they arrived for antenatal appointments at the outpatient clinics. Initially, clinic staff agreed to recruit participants. However, staff were frequently unable to recruit due to being occupied by other tasks; therefore, the study investigator assumed the recruitment role one month into the study. When an

antenatal patient arrived, clinic staff directed the patient to the investigator, who explained the purpose of the study and asked if she would be willing to participate. Participants who did not complete the survey prior to leaving were given the option to take a stamped envelope to return to the investigator upon completion of the materials. Of the three patients who elected this option, two returned the surveys.

Internet Sample. A link to the prenatal survey packet was posted on 15 childbirth-related bulletin boards on Babycenter.com. Women who signed on to these boards were provided basic information about the purpose of the study and contact information for the investigator. Subscribers who were interested in participating in the study were asked to click on a link to the prenatal questionnaire packet.

Data Analysis

The goal of this study was to complete the first phase of scale development of an instrument designed to assess Desire for Control in Childbirth. The following procedures detail the data analytic strategies used to achieve these goals.

Item Development. A total of 38 items were adapted from the KHOS, Desirability for Control Scale and the DCON to describe desire for control in the childbirth setting. Items were reworded to include references to labor and childbirth; however, not all items contain these words (e.g. I enjoy participating in decisions that will affect my experience and I want to influence the kind of care I get). The survey instructions asked participants to think about the statements in reference to their future childbirth experience, which placed these items in the childbirth context.

In the KHOS, references to illness, treatments, and cures were omitted and replaced with phrases that pertained to the labor and delivery process. However, references to medical exams and procedures were not omitted because medical procedures are often part of labor and delivery. Fifteen items are based on those found in the Desirability for Control scale. References to other circumstances such as jobs or political participation were omitted and replaced by references to labor and delivery. Because this was a general scale, the new items are probably least similar to the original items. Five of the items from the original scale could not be altered in any ecologically valid way and were not included in the analysis. Items from the DCON are not worded to reflect any particular health situation; the original items do not include statements about illness or treatment. Thus, references to labor, delivery and birth were simply added to the DCON items.

Exploratory Factor Analysis. Exploratory factor analysis (EFA) was used to evaluate the structure underlying the construct desire for control, as it is pertains to the experience of childbirth. Using EFA allows the researcher to identify the relationships between observed variables or items in order to group a smaller set of items into a single dimension reflecting similar characteristics (Pett, Lackey & Sullivan, 2003). The goal of the study was to identify a single factor to explain the relationships among the set of 38 items. Exploratory rather than confirmatory factor analysis was used because the construct of interest has not been evaluated in the childbirth setting. Although EFA is considered less appropriate when there are specific expectations regarding the number of factors, EFA can be appropriate if the

researcher bears in mind that such expectations may not be correct (Henson & Roberts, 2006). The possibility that more than one factor might be required to explain variance in the items was acknowledged, given that the DCCh collapsed items from three different scales, one of which contained two distinct subscales.

It is important to note several assumptions of EFA when evaluating results of the following analysis. First, EFA assumes that there are one or more underlying factors that explain the relationships between the observed variables and that the number of factors is smaller than the number of observed variables. The use of Pearson product moment correlations in the first steps of analysis assumes that distributions are continuous and that the relationships between items are linear.

It is also important to ensure adequate sample size before proceeding with EFA. A priori power calculations were conducted based upon the number of items that would be entered into the factor analysis and the number of factors underlying the scale. Although the goal of the current study was to establish a single-factor scale, it was understood that the factor structure of the DCCh might not be unidimensional. Therefore, power calculations were conducted for up to four factors.

Discriminant and Predictive Validity. Several statistical methods were used to assess construct and predictive validity. Zero-order correlations were used to examine the relationship between desire for control in childbirth and related constructs. Logistic regression was used to determine whether desire for control could be used to identify women's choices for childbirth and childbirth preparation. In each of these equations age, parity, and ethnicity were entered as covariates, followed by

desire for control. In a third step, internal health locus of control was entered into the equation. This last step enabled us to compare the predictive utility of desire for control with a more established construct. It should be noted that data source was not controlled for in the analysis because planned childbirth location and the choice of medical provider were practically invariable in the clinic group.

CHAPTER 3

Results

Participant Characteristics

Demographic information for the 193 participants is presented in Table 2. Table 2 also includes comparisons between clinic and online participants. Most women in the study were in their late twenties and age did not differ significantly between groups. There were significantly more participants in the clinic sample who were non-Caucasian and did not have a partner. This was a highly educated sample, 64% of the combined sample had attained at least a four-year college degree and groups did not differ significantly in terms of highest level of education attained. Although similar on some demographic characteristics, patients recruited at the KUMC clinics were more likely to have a minority status either because of their ethnicity or because they did not have a partner.

Table 3 presents pregnancy information data for the two samples. As can be seen in this table, the majority of the participants were not first time mothers and the groups did not differ significantly in terms of parity. Significantly more participants in the online group had attended childbirth preparation classes, but the groups did not differ significantly in terms of the types of classes attended. More participants in the online group reported receiving medical care from a non-traditional medical practitioner such as a midwife, or a combination of OB/GYN and midwife. In addition, more participants in the online group planned to use labor support such as a doula and/or planned to give birth at a location other than a hospital. It is important

Table 2. Participant Demographics

	Online	*Clinic*	*Total*	*t or* χ^2
Age				
M(SD)	29.5(4.8)	28.1(5.0)	29.2(4.9)	1.55
Marital Status				
(Partnered vs. Not partnered)				8.20*
Married/Living with Partner	141(95%)	37(82%)	178(92%)	
Separated/Divorced	1(0.7%)	3(7%)	4(2%)	
Never Married	6(4.3%)	5(11%)	11(6%)	
Ethnicity				
(White vs. Non-white)				8.82*
White/Caucasian	129(88%)	31(69%)	160(83%)	
African-American	4(3%)	7(16%)	11(6%)	
Hispanic	7(5%)	2(4%)	9(5%)	
Asian/Asian American/Pacific Islander	2(1%)	1(2%)	3(1.5%)	
Native American	2(1%)	1(2%)	3(1.5%)	
Multi-Ethnic	2(1%)	2(4%)	4(2%)	
Other	1(0.7%)	1(2%)	2(1%)	
Education				
(College degree vs. No degree)				0.09
High School/GED	10(7%)	4(9%)	14 (7%)	
Trade School	4(3%)	0(0%)	4 (2%)	
Some College	35(24%)	12(27%)	47 (25%)	
College Degree	54(37%)	17(38%)	71 (37%)	
Some Graduate School	8(5%)	5(11%)	13 (7%)	
Graduate/Professional Degree	34(23%)	6(13%)	40 (21%)	

* = $p<0.05$.

Table 3. Pregnancy Characteristics

	Online	*Clinic*	*Total*	χ^2
Parity				0.48
Primiparous	59(40%)	15(33%)	74 (38%)	
Multiparous	89(60%)	29(64%)	118 (62%)	
Childbirth Preparation Classes				9.33*
Yes	95(64%)	17(35%)	112(58%)	
No	32(16%)	15(33%)	47 (24%)	
Plan to attend	21(14%)	12(27%)	33 (17%)	
Childbirth Preparation Type (General vs. Other)				3.23
General (Hospital Preparation)	48(32%)	12(27%)	60 (31%)	
Bradley Method	16(11%)	0(0%)	16 (8%)	
Lamaze	19(13%)	4(9%)	23 (12%)	
Hypnobirthing	10(5%)	0(0%)	10 (4%)	
Other	9(5%)	0(0%)	9 (4%)	
Medical Care Provider				N/A
OB/GYN	69(47%)	43(96%)	112 (58%)	
Midwife	58(39%)	0(0%)	58 (30%)	
Combination: (OB+Midwife)	13(9%)	0(0%)	13 (7%)	
Family Practice Physician	8(5%)	1(2%)	9 (5%)	
Planned Labor Support (e.g. doula)				7.63*
Yes	47(32%)	5(11%)	52 (27%)	
No	85(57%)	31(69%)	116 (60%)	
Don't Know	16(11%)	8(18%)	24 (13%)	
Planned Delivery Location				N/A
Hospital	102(69%)	44(98%)	146 (76%)	
Birth Center	10(7%)	0(0%)	10 (5%)	
Home	35(24%)	0(0%)	35 (18%)	
Twins/Multiples				N/A
Yes	3(2%)	0(0%)	3 (1%)	
No	138(93%)	38(84%)	176 (92%)	
Don't Know	6(4%)	7(16%)	13 (7%)	
Breech Presentation				N/A
Yes	5(3%)	1(2%)	6 (3%)	
No	97(66%)	15(33%)	112 (58%)	
Don't Know	46(31%)	28(62%)	74 (39%)	

* = $p < .05$.

Note: χ^2 analyses were not performed if cases were absent in one or more cells.

to note, however, that clinic participants were recruited from practices that did not offer midwifery services or the option of using a birth center.

As can be seen in Table 4, reports of health were more positive in the online group as were reports of attitudes about their current pregnancies. However, the groups did not differ in terms of their reports of physical comfort during their current pregnancy. Overall, the combined sample reported good health in general and positive attitudes about their pregnancies, while noting some experience of physical discomfort.

Table 4. Health and Pregnancy Experience

	Online M(SD)	*Clinic M(SD)*	*Total M(SD)*	*t-test*
Describe your general health on a 1 to 5 scale?	4.15(0.69)	3.87(0.82)	4.08(0.73)	2.1*
Describe your attitude about your current pregnancy on a 1 to 5 scale?	4.62(0.63)	4.23(1.02)	4.53(0.76)	2.4*
Describe your experience of physical comfort during this pregnancy on a 1 to 5 scale?	3.24(1.05)	2.87(1.16)	3.16(1.09)	1.9

* = $p < .05$.

Pregnancy complications reported in this sample are shown in Table 5. A total of 40% of the combined sample reported experiencing some sort of complication with their current pregnancy. Participants were asked specifically about conditions known to cause complications to labor and delivery outcome (e.g., diabetes, hypertension) and asked to report any additional complications. The investigator compiled a list of all reported complications and submitted them to an obstetrician at KUMC to be rated according to the likelihood that the condition would cause adverse birth outcomes for the mother and/or infant. The obstetrician rated these on a scale ranging from 0 (little

to no risk of adverse health outcomes for mother or infant) to 3 (very serious risk, almost always associated with adverse health outcomes). These complications are listed in Table 6. Twenty-nine percent of the combined sample reported complications that posed some risk to the health of the mother or infant but the groups did not differ significantly in terms of the severity of reported complications Thus, the majority of the combined sample of women reported healthy, low-risk pregnancies.

Table 5. Pregnancy Complications

	Online	*Clinic*	*Total*	χ^2
Complication Severity (None or not a complication vs. Complication)				0.19
(0) Very minor/not a complication	6(4%)	1(2%)	7(4%)	
(1) Moderate complication	8(5%)	2(4%)	10 (5%)	
(2) Serious complication	30(20%)	8(18%)	38(20%)	
(3) Very serious complication	3(2%)	1(2%)	4 (2%)	
(NC) Other conditions (unspecified)	1(0.5%)	1(2%)	2 (2%)	
Missing	12(8%)	3(11%)	15(8%)	
No complications reported	88(59%)	29(64%)	117(60%)	

Preliminary Data Reduction

Of the 38 items that were written to assess desire for control in childbirth, 19 were reverse scored so that lower scores would reflect lower desire for control and higher scores would reflect higher desire for control. A total of 13 items were discarded that did not meet the following criteria: (a) a mean response between 2.5 and 4.5 on a 6-point Likert Scale (b) a standard deviation of at least 1.0, indicating an adequate distribution of scores. Items were retained that met these criteria in at least

Table 6. Complication Severity Index

Complications	Rating
History of recurrent miscarriage	0
Irritable uterus	0
Inguinal hernia	0
Hypotension	0
Puppp Syndrome	0
Glucose intolerance	0
Shortness of breath	0
Edema	0
Mood or Anxiety disorders: e.g. depression or general anxiety	0
Chronic UTI	1
Bacterial Vaginosis	1
SPD: pubis symphysis separation	1
Pain e.g. migraines, pelvic, other chronic pain	1
Rh-	1
Hyperemesis	1
Kidney stones	1
Gestational diabetes	2
Hypertension	2
Pregnancy-Induced hypertension	2
Diabetes	2
Anemia	2
Hypothyroidism	2
Hypertension	2
Single artery umbilical cord	2
Severe dehydration	2
Amniotic leak <37 weeks	2
Asthma	2
Group B strep	2
Gallstones	2
Thrombocytopenia	2
Risk for PTL	2
Subchorionic bleed/hemorrhage	2
Miscarriage of twin during current pregnancy @ 8 weeks	2
Placental abruption	2
Diagnosed fetal birth defect	3
High cord pressure	3
Pre-term labor	3
Other Unspecified Conditions	NC

one of the two samples. Table 7 includes each item with the means and standard deviations for the total sample and separately for the online and clinic samples. The remaining 25 items selected to be included in the exploratory factor analysis are indicated in bold.

Exploratory Factor Analysis

Extraction Method. Twenty-five items were included in the EFA using the maximum likelihood (ml) extraction method to identify factors. The ML method is used to assess the "likelihood that the correlation matrix is derived from a population where the attained factor structure underlies the scores on the variables" (Kahn, 2006). One, two, three, and four-factor solutions were examined using the Direct Oblimin rotation method; it was expected that any underlying factors would be correlated.

Power. In order to ensure that the sample size was adequate for EFA, a priori power calculations were conducted using the number of items that were entered into the factor analysis (25). Using guidelines established by MacCallum and colleagues (1996) for determining power and sample size, alpha was set at .05 and desired power was set at 0.8. Using these parameters, the automated online program "Computing Power and Minimum Sample Size for RMSEA" (Preacher & Coffman, 2006) was used to estimate the sample size necessary to reject a model if it did not fit the data closely. Computations were conducted for models with up to four factors. Calculations indicated that a sample of 100 would be adequate to achieve desired power.

Table 7. DCCh Means and Standard Deviations

DCCh Items	*Online M(SD)*	*Clinic M(SD)*	*Total M(SD)*
KHOS – Information Subscale (Modified)			
1. I usually don't ask the doctor or nurse many questions about what they are doing during a medical exam. (R)	4.9(1.36)	**4.33(1.48)**	4.77(4.41)
2. I would rather have the doctors and nurses make the decisions about what's best than for them to give me a whole lot of choices. (R)	5.58(0.84)	4.58(1.5)	5.35(1.11)
3. Instead of waiting for them to tell me, I would prefer to ask the doctor or nurse about the conditions or progress of my labor.	4.64(1.47)	**4.44(1.46)**	4.59(1.46)
4. I usually ask the doctors and nurses a lot of questions during a medical exam.	4.59(1.36)	**3.96(1.6)**	**4.45(1.44)**
5. It is better to trust the doctor or nurse in charge of a medical procedure than to question what they are doing.(R)	5.14(1.22)	**4.14(1.51)**	4.91(1.36)
6. I would prefer to wait for the doctor or nurse to tell me about the conditions or progress of my labor rather than ask them myself.(R)	5.03(1.12)	**4.5(1.53)**	4.91(1.24)
7. I would rather be given many choices about what is best for my labor and birth than to have the doctor make the decisions for me.	5.54(0.92)	4.76(1.42)	5.36(1.10)
KHOS– Behavior Subscale(Modified)			
8. Except for serious complications, it is better to make your own decisions about how to manage your labor and birth than to rely on professional help.	5.13(1.11)	**3.69(1.55)**	4.79(1.36)
9. It is better to rely on judgments of doctors (who are the experts) than to rely on "common sense" when deciding what is best during labor.(R)	**4.5(1.42)**	**3.37(1.33)**	**4.24(1.47)**
10. It is best for medical experts to take responsibility for managing labor and birth.(R)	4.64(1.41)	**3.02(1.42)**	**4.26(1.57)**

Note: Items that met preliminary retention criteria appear in bold.

Table 7. Continued

DCCh Items	*Online M(SD)*	*Clinic M(SD)*	*Total M(SD)*
11. Making your own decisions about how to manage your labor rather than relying on a physician is a good idea.	4.93(1.15)	**3.29(1.16)**	4.56(1.35)
12. It is almost always better to use professional help than to try to take care of your own labor.(R)	**3.76(1.66)**	**2.14(1.11)**	**3.4(1.7)**
13. Trying to manage your own labor without using a physician's help may do more harm than good.(R)	**3.97(1.64)**	**2.18(1.29)**	**3.56(1.73)**
14. Childbirth is usually safer when doctors or nurses decide on interventions than when patients decide for themselves.(R)	4.79(1.43)	**3.13(1.47)**	**4.43(1.6)**
15. I would rather have a doctor or a nurse decide what I can or cannot do in labor than decide for myself.(R)	5.33(1.12)	**4.05(1.46)**	5.04(1.32)
16. It is better to rely less on physicians and more on your own common sense when it comes to deciding how to be most comfortable in labor.	5.01(1.35)	**3.75(1.35)**	4.69(1.48)
Desirability for Control Scale (Modified)			
17. I prefer a birthing situation/labor and delivery where I have a lot of control over what I do and when I do it.	5.51(0.82)	**4.07(1.24)**	5.19(1.11)
18. I enjoy participating in making decisions that will affect my experience.	5.67(0.66)	4.86(1.14)	5.49(0.86)
19. I would prefer to avoid a labor and birth where the medical staff tells me what to do.	5.22(1.18)	**3.43(1.23)**	4.82(1.4)
20. I would like to be educated about the process so that I can make my own decisions regarding my labor and birth.	5.8(0.51)	5.02(1.2)	
21. I believe that my medical caregivers will know what is best for me during my labor and birth.(R)	**3.38(1.31)**	**2.52(1.37)**	**3.19(1.37)**
22. I enjoy making my own decisions.	5.61(0.67)	5.07(1.28)	5.49(0.87)
23. I want to have a high amount of control over what is done to my body during labor.	5.62(0.7)	**4.5(1.23)**	5.38(0.95)

Note: Items that met preliminary retention criteria appear in bold.

Table 7. Continued

DCCh Items	*Online M(SD)*	*Clinic M(SD)*	*Total M(SD)*
24. I consider myself to be more capable of handling labor and birth situations than others are.	**3.54(1.12)**	**4.35(1.25)**	**4.17(1.26)**
25. I wish I could push most of my medical decisions off onto my medical caregivers.(R)	5.35(1.06)	4.56(1.32)	5.17(1.17)
26. In my labor and birth experience, I would prefer to be given one option rather than having to make a decision between several options.(R)	5.43(0.94)	**4.45(1.42)**	5.2(1.14)
27. When I am in labor, I would prefer the medical staff to make all the decisions and solve all problems so I don't have to.(R)	5.55(0.89)	**4.5(1.3)**	5.3(1.09)
28.When I am in labor, I trust that my caregivers will be able to make better decisions regarding my care than I would be able to.(R)	4.88(1.27)	**3.38(1.48)**	4.53(1.46)
29. Even if there are no complications during my labor and birth, I would prefer that my caregivers and support people make the decisions about what I can do in labor.(R)	5.5(1.01)	**4.28(1.37)**	5.23(1.21)
30. If any complications arise in my labor, I want to be an active participant in making choices regarding the best course of action.	4.76(1.26)	5.59(0.85)	5.4(1.02)
31. If any complications arise in my labor, I think that my primary caregiver is the best judge of what to do.(R)	**3.35(1.47)**	**2.13(1.03)**	**3.07(1.48)**
DCON (Modified)			
32. I want to have a say in what will be done to me during labor and delivery.	5.18(0.97)	5.79(0.53)	5.65(0.7)
33. When I am in labor, I want the doctors and nurses to decide what is best for me.(R)	5.23(1.16)	**3.94(1.53)**	4.93(1.36)
34. I want to know in advance what procedures will be used during labor and delivery.	5.42(0.95)	5.67(0.66)	5.61(0.74)
35. I want to influence the kind of care I get.	5.0(1.2)	5.77(0.54)	5.6(0.69)

Note: Items that met preliminary retention criteria appear in bold.

Table 7. Continued

DCCh Items	*Online M(SD)*	*Clinic M(SD)*	*Total M(SD)*
36. I do not want to know in advance what the procedures in my labor will feel like.(R)	5.2(1.41)	4.77(1.58)	5.1(1.46)
37. I want to know what the purpose and effects of the procedures in my labor and birth are.	5.23(1.03)	5.81(0.47)	5.67(0.7)
38. I want to have a say in what procedures I will most likely get during labor and delivery.	5.05(1.01)	5.79(0.51)	5.62(0.73)

Note: Items that met preliminary retention criteria appear in bold.

Factor Retention

Multiple sources recommend the use of more than one decision rule when deciding how many factors to retain (Henson & Roberts, 2006; Kahn, 2006). Three decision rules were employed here: Kaiser's criterion, the scree-plot method and parallel analysis. Kaiser's criterion is a decision rule to retain factors with an eigenvalues > 1.0. Figure 2 depicts the scree plot of eigenvalues against the number of factors identified in the 2-factor solution. Using Kaiser's criterion, four factors should be retained because four factors have eigenvalues of at least 1.0. This plot can also be used for the scree plot method, which suggests retaining only the factors before the last substantial drop in eigenvalues. Using this criterion, only one factor is retained because the only substantial drop in eigenvalues occurs after the first factor. One problem noted with Kaiser's criterion is that often this method suggests retaining too many factors. The scree method, on the other hand, may result in the retention of too few factors. The difference between these two methods in the number of retained factors was notable and a third decision rule was applied.

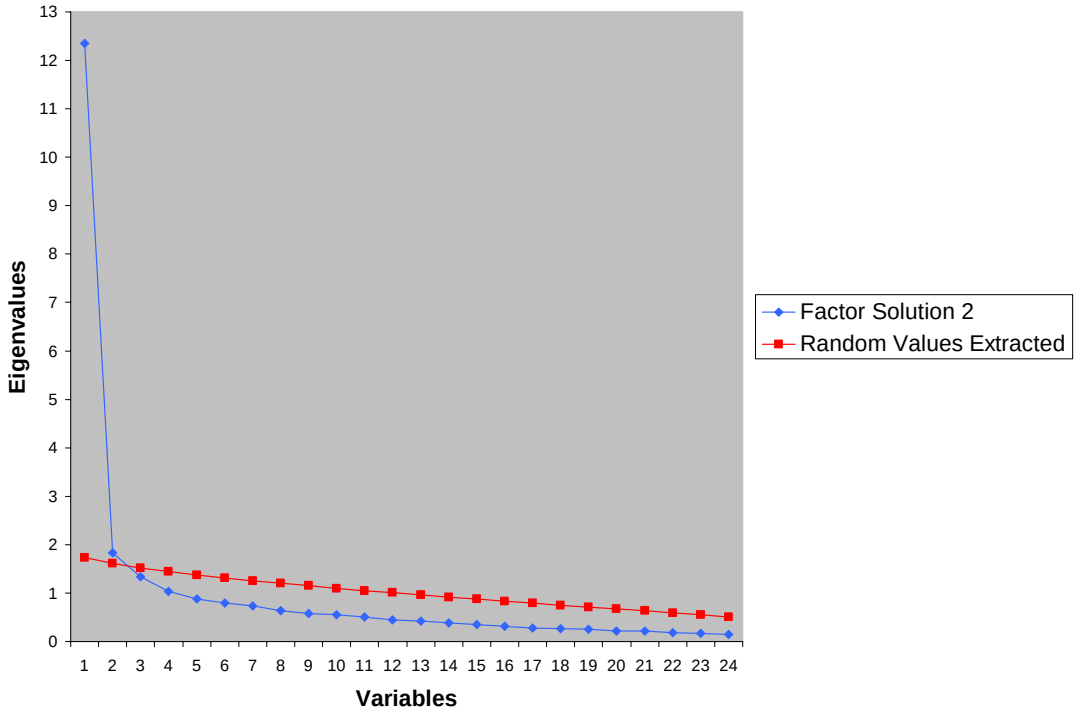

Figure 2. Scree Plot & Parallel Analysis

Parallel analysis has been described as the most effective method of deciding how many factors to retain (Kahn, 2006). A parallel analysis generates eigenvalues from a random set of data based on the same number of variables (items) and the same number of cases. These randomly generated eigenvalues are then plotted on a scree plot along with the actual eigenvalues. The factors with actual eigenvalues larger than random eigenvalues are retained because it is assumed that a factor that explains more variance than chance is meaningful (Kahn, 2006). The parallel analysis was conducted using a web program created by Patil, Singh, Mishra, & Donovan (2007). Figure 2 also shows the scree plot of random eigenvalues generated from

random data based on 193 cases and 38 variables. According to this method, two factors were retained.

Factor Loadings

Table 8 contains loadings for each of the 25 items from the pattern matrix of the 2-factor solution. A total of 21 items loaded on the first factor, which explained 49% of the variance. As shown in Table 8, factor loadings for these 21 items ranged from fair to excellent in terms of the shared variance between that item and the first factor (loadings ranged 0.47-0.87). Because each of the 21 items had a factor loading of at least 0.45, which is at the lower range of what is considered a fair amount of shared variance, none of these items were discarded (Pett, Lackey, & Sullivan, 2003).

Twenty of the 21 items loading on the first factor were derived from the KHOS-Behavioral Involvement Subscale (9 items), the Burger Desirability for Control Scale (9 items) and the DCON (2 items). Examination of the items suggested that that this factor best reflects patient participation in decision-making as well as patient control of what she can do during labor. One item (#5) that loaded on the first factor was derived from the KHOS-Information subscale. However, this item, "It is better to trust the doctor or nurse in charge of a medical procedure than question what they are doing" better reflected patient involvement in her care and was retained with the other 20 items that loaded on the first factor. The first factor will be referred to as behavioral control (B) and the 21-item scale will be referred to as DCCh-B. Item correlations for the DCCh-B are located in Table 9.

Table 8. Item Factor Loadings

	Factor 1	*Factor 2*
1. I usually don't ask the doctor or nurse many questions about what they are doing during a medical exam. (R)	-0.04	**0.84**
3. Instead of waiting for them to tell me, I would prefer to ask the doctor or nurse about the conditions or progress of my labor.	0.08	**0.31**
4. I usually ask the doctors and nurses a lot of questions during a medical exam.	-0.06	**0.85**
5. It is better to trust the doctor or nurse in charge of a medical procedure than to question what they are doing.(R)	**0.50**	0.31
6. I would prefer to wait for the doctor or nurse to tell me about the conditions or progress of my labor rather than ask them myself.(R)	0.19	**0.47**
8. Except for serious complications, it is better to make your own decisions about how to manage your labor and birth than to rely on professional help.	**0.73**	-0.05
9. It is better to rely on judgments of doctors (who are the experts) than to rely on "common sense" when deciding what is best during labor.(R)	**0.66**	0.01
10. It is best for medical experts to take responsibility for managing labor and birth.(R)	**0.80**	-0.02
11. Making your own decisions about how to manage your labor rather than relying on a physician is a good idea.	**0.87**	-0.08
12. It is almost always better to use professional help than to try to take care of your own labor.(R)	**0.75**	-0.12
13. Trying to manage your own labor without using a physician's help may do more harm than good.(R)	**0.79**	-0.03
14. Childbirth is usually safer when doctors or nurses decide on interventions than when patients decide for themselves.(R)	**0.78**	0.14
15. I would rather have a doctor or a nurse decide what I can or cannot do in labor than decide for myself.(R)	**0.82**	0.07
16. It is better to rely less on physicians and more on your own common sense when it comes to deciding how to be most comfortable in labor.	**0.67**	-0.05
17. I prefer a birthing situation/labor and delivery where I have a lot of control over what I do and when I do it.	**0.83**	-0.09
19. I would prefer to avoid a labor and birth where the medical staff tells me what to do.	**0.78**	-0.07

Table 8. Continued

	Factor 1	*Factor 2*
21. I believe that my medical caregivers will know what is best for me during my labor and birth.(R)	**0.55**	0.10
23. I want to have a high amount of control over what is done to my body during labor.	**0.76**	-0.04
24. I consider myself to be more capable of handling labor and birth situations than others are.	**0.54**	-0.08
26. In my labor and birth experience, I would prefer to be given one option rather than having to make a decision between several options.(R)	**0.59**	0.19
27. When I am in labor, I would prefer the medical staff to make all the decisions and solve all problems so I don't have to.(R)	**0.67**	0.19
28.When I am in labor, I trust that my caregivers will be able to make better decisions regarding my care than I would be able to.(R)	**0.74**	0.15
29. Even if there are no complications during my labor and birth, I would prefer that my caregivers and support people make the decisions about what I can do in labor.(R)	**0.69**	0.10
31. If any complications arise in my labor, I think that my primary caregiver is the best judge of what to do.(R)	**0.49**	0.09
33. When I am in labor, I want the doctors and nurses to decide what is best for me.(R)	**0.74**	0.19

Table 9. DCCh-B Item Correlations

	5	8	9	10	11	12	13	14	15	16	17	19	21	23	24	26	27	28	29	31	***33***
5	--	.45	.46	.52	.50	.43	.53	.60	.59	.37	.50	.51	.47	.45	.33	.48	.52	.56	.47	.43	.62
8	--	---	.46	.54	.71	.49	.53	.57	.51	.55	.59	.57	.44	.50	.37	.43	.48	.55	.51	.33	.57
9	--	---	----	.57	.60	.53	.53	.56	.56	.51	.52	.47	.41	.44	.41	.39	.46	.48	.45	.41	.57
10	--	---	---	---	.73	.60	.64	.70	.65	.49	.60	.55	.47	.56	.33	.49	.56	.61	.53	.44	.65
11	--	---	---	---	---	.63	.70	.68	.65	.60	.66	.64	.47	.59	.42	.47	.58	.64	.61	.46	.66
12	--	---	---	---	---	---	.76	.67	.55	.47	.49	.49	.46	.41	.25	.44	.45	.52	.43	.43	.47
13	--	---	---	---	---	---	---	.74	.66	.54	.59	.51	.46	.49	.33	.53	.54	.63	.50	.44	.59
14	--	---	---	---	---	---	---	---	.78	.51	.60	.58	.59	.56	.41	.60	.63	.70	.61	.49	.71
15	--	---	---	---	---	---	---	---	---	.44	.66	.61	.56	.64	.38	.66	.71	.71	.66	.42	.77
16	--	---	---	---	---	---	---	---	---	---	.61	.50	.43	.49	.41	.35	.43	.51	.42	.27	.51
17	--	---	---	---	---	---	---	---	---	---	----	.71	.36	.74	.40	.56	.61	.57	.49	.33	.62
19	--	---	---	---	---	---	---	---	---	---	---	---	.35	.64	.47	.42	.58	.58	.63	.43	.61
21	--	---	---	---	---	---	---	---	---	---	---	---	---	.32	.31	.44	.42	.59	.39	.43	.54
23	--	---	---	---	---	---	---	---	---	---	---	---	---	---	.32	.59	.68	.57	.60	.32	.64
24	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	.34	.36	.44	.30	.25	.40
26	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	.69	.61	.52	.31	.58
27	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	.70	.68	.35	.70
28	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	.69	.48	.75
29	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	.41	.67
31	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	.48
33	--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

All correlations significant at $p < 0.01$ (2-tailed).

The four remaining items loaded on the second factor, which explained an additional 7% of the variance. These four items were derived from the KHOS-Information subscale, which ask specifically about how frequently the respondent requests information from her medical caregivers. Although item #5 was also derived from this scale, a factor loading of 0.31 on the second factor suggests that it does not reflect desire for information as strongly as the other four items.

Results of the EFA suggest that more than one factor was needed to explain desire for control. The correlation between the two factors, r=0.51 suggests that they are related, but is not strong enough to collapse the items into a unidimensional scale. In other words, desire for control in childbirth probably consists of two correlated factors: desire for information and desire for behavioral control. Because the goal of the current study was to develop a single-factor instrument and because the majority of the items loaded on the first factor, the remaining results will pertain to the 21 items of the DCCh-B. Future studies will be needed to further examine the items that loaded on the second factor and determine if the DCCh should also include a subscale to assess desire for information.

Internal Consistency

Reliability analysis indicated that the 21-item scale has a Cronbach's alpha of 0.96 and that alpha does not fall below 0.95 if any one item is deleted. This indicates a scale with extremely high internal consistency. This analysis indicates that it will be appropriate to winnow down the number of items on the current scale.

Demographic Correlates of the DCCh-B

A single Ordinary Least Squares (OLS) regression was used to assess demographic correlates of the DCCh-B (see Table 10). Consistent with a priori hypotheses, women who completed the survey online reported higher desire for control than those who completed the survey in the clinics. Although no specific predictions about parity were made, the data show that multiparous women had higher desire for control scores than primiparous women. In other words, women who had previously given birth reported higher desire for control. Finally, Caucasian women had marginally higher scores on the DCCh-B than did non-Caucasian women.

Table 10. Demographic Correlates of DCCh-B

	Standardized Beta	*t-value*
Data Source (Online vs. Clinic)	-0.56	-8.78**
Age	-0.03	-0.39
Ethnicity (White vs. Non-white)	-0.12	-1.79
Marital Status (Partnered vs. Not Partnered)	0.03	-0.39
Education	0.08	1.01
Parity	0.13	1.97*

** $p < 0.01$.
* $p \leq 0.05$.

Discriminant Validity

Table 11 displays correlations between the DCCh-B scale and the GSE and each of the four subscales [Internal (I), Physician (P), Powerful Others (O), and Chance (C)] of the MHLC. The DCCh was expected to show a small, positive relationship with the MHLC-I and the GSE. As can be seen in Table 11, there are similar small relationships between DCCh-B and the MHLC-I and the DCCh-B and the GSE. These relationships are in the expected (positive) direction, but indicate that

there is minimal overlap between the desire for control in childbirth and these related constructs. The hypothesis that desire for control would be inversely related to the MHLC-P and MHLC-O was also supported. However, the correlation between the DCCh-B and the MHLC-P was much larger than between the DCCh-B and the MHLC-O (-.639 and -.254, respectively, $p<0.01$), indicating overlap between desire for control in childbirth and physician locus of control. DCCh-B scores were also inversely correlated with the MHLC-C (-0.38, $p<0.01$). Taken together, these relationships suggest that women who have higher desire for control also probably *expect* that the outcomes of their childbirths will be less attributable to the efforts of their medical caregivers or to fate.

Table 11. Discriminant Validity of DCCh-B

Scale	*DCCh-B*	*GSE*	*MHLC(I)*	*MHLC(P)*	*MHLC(O)*	*MHLC(C)*
DCCh-B	-----	.327**	.334**	-.639**	-.254**	-.377**
GSE	-----	-----	.172*	-.067	-.163*	-.151*
MHLC(I)	-----	-----	-----	-.165*	.028	-.154*
MHLC(P)	-----	-----	-----	-----	.238**	.348**
MHLC(O)	-----	-----	-----	-----	-----	.198*
MHLC(C)	-----	-----	-----	-----	-----	-----

** $p< 0.01$ (one-tailed).
* $p< 0.05$ (one-tailed).

Predictive Validity

Higher DCCh-B scores were expected to be related to choices regarding medical practitioners, birthing sites, labor support, and childbirth preparation. Data from a series of logistic regression analyses are presented in column 1 of Table 12. It should be noted that age, parity, education, and ethnicity were removed from the equation because they were not significant predictors of group membership. Results

demonstrate that women who scored higher on the DCCh-B were significantly more likely to choose a non-traditional medical practitioner (i.e., a midwife) and to choose additional non-traditional supportive care from a doula. Moreover, women with high DCCh-B scores were also more likely to choose a childbirth preparation method that emphasizes active control in labor. It should be noted, however, that effect sizes are small, likely because of the small number of participants who reported making choices outside the norm.

As a final step for each equation described above, MHLC-I was entered to determine whether internality was related to pre-childbirth decisions. As shown in column 2 of Table 12, internality predicted the decision to give birth someplace other than a hospital, but did not predict any other pre-childbirth choices. Furthermore, in no case did entry of internality alter the magnitude of the relationship between the DCCh-B and pre-birth choices. These results support the argument that desire for control is a construct that is distinct from health locus of control and that desire for control is a better predictor of choices related to childbirth.

Table 12. Predictive Validity of DCCh-B and Comparisons to MHLC-I

Childbirth Choices	*Desire for Control (DCCh-B)*		*Internality (MHLC-I)*	
	(OR)	Wald	(OR)	Wald
Non-Traditional Care or Labor Support: Midwife or doula	1.11**	38.3	1.06	1.73
Birth Location: Hospital vs. Other	1.13**	22.1	1.12*	4.7
Childbirth Class Type: Hospital vs. Other	1.03**	7.71	0.98	0.19

** $p<0.01$.
* $p<0.05$.
Note: Age, parity, ethnicity, and education did not covary with any of these outcomes and were removed from the model.

CHAPTER 4

Discussion

The goal of the current study was to select items designed to assess desire for control within the childbirth environment and to gather preliminary data to support the reliability and validity of this instrument. The resulting scale, the DCCh-B, is a unidimensional scale with extremely high internal consistency. The scale also had discriminant validity from the GSE and the MHLC; and it significantly predicted childbirth choices that women frequently make who desire more freedom within the childbirth process.

The birth of a child is often described as one of the most significant and memorable experiences in a woman's life. For many mothers, the process of childbirth has lasting effects despite its relative transience. Negative childbirth experiences have been shown to contribute to postpartum depression and even PTSD (Kendall-Tackett, 2005). In contrast, positive experiences allow new mothers to bond with their infants and can improve the new family's adjustment during the postpartum period (DiMatteo, Kahn, & Berry, 1993; Quine, Rutter, & Gowan, 1993). A biopsychosocial model of childbirth satisfaction that integrates medical and psychosocial variables is therefore crucial to improving maternity care.

One factor thought to be important to positive childbirth experiences is desire for control within the birth environment. Desire for control reflects a mother's motivation to influence her birth environment in ways that will make her more physically and psychologically comfortable. This can mean taking part in decisions

regarding medical interventions or simply the freedom to select strategies to labor comfortably. Moreover, the data suggest that desire for control is evidenced in choices related to childbirth preparation. Women with higher desire for control were more likely to have completed the survey online and to have chosen non-traditional practitioners and support persons such as midwives and doulas. Furthermore, women with a high desire for control were more likely to prepare for childbirth using natural childbirthing methods such as Bradley or Hypnobirthing. Choices such as these reflect an orientation to childbirth in which the mother is encouraged to take control of her experience.

However, it should be noted that childbirth choices frequently associated with use of fewer interventions, are *not necessarily* synonymous with higher desire for control. Women with higher desire for control may express this control by seeking interventions such as labor induction or planned cesarean sections. In this way, women who are more closely aligned with the medical model of childbirth can also take control of their experiences. This may be the explanation for why the predictive relationship between desire for control and non-traditional childbirth choices showed such a small effect size. Regardless, these relationships support the predictive validity of the new instrument.

Interestingly, the data also showed that multiparous mothers reported a greater desire for control than primiparous mothers. Although no a priori predictions about parity were made, this outcome makes sense because previous experience with childbirth should, on average, reduce fear of the unknown, increase situation-specific

self efficacy to manage labor, and desire to either replicate a previous childbirth experience or to change how the experience unfolded.

A major barrier to understanding the relationships of factors such as desire for control and perceptions of the childbirth experience has been the lack of psychometrically tested instruments. Studies have utilized instruments that use internal locus of control as a proxy for desire for control. These studies (e.g., Knapp, 1996; Waldenstrom, 1999) concluded that desire for control was not relevant to childbirth satisfaction. However, the results of the current study clearly demonstrate that desire for control and internal locus of control are two distinct and unique constructs. Desire for control was only minimally correlated with internal health locus of control and was a better predictor of choices related to childbirth preparation. It is clear that desire for control must be correctly operationalized in relation to childbirth satisfaction.

Why a New Scale?

A situation-specific measure of desire for control in childbirth is warranted because health care involvement in childbirth is fundamentally different than involvement with decision-making in other health care settings. Whereas most health care processes and their outcomes are primarily determined by medical manipulation, nature is the primary determinant of the childbirth process and its outcome. For example, it would be virtually impossible for an organ transplant or the removal of a tumor to occur without any medical action, but the same could not be said about the birth of an infant. However, the (sometimes) precarious nature of childbirth has

brought about at least some degree of medical involvement in most births in the United States. Thus, women in childbirth experience some of the procedures that patients undergoing preventive or curative treatments for various illnesses experience (e.g., IVs, pain medications, monitoring). Notwithstanding these health care processes involved in labor and delivery, the childbirth process remains a unique and fundamentally normal, healthy event.

Existing instruments were developed to answer the question: to what degree do patients differ in their desire for control over these health care processes and how does this affect their overall experience? However, the fact that the childbirth process is not an illness per se precludes the use of said instruments. A general measure of desire for control over health care processes that does not account for the specific childbirth context would be poorly suited to assess desire for control in childbirth.

It is important to note that the items on the DCCh-B are comprised of 21 items derived from scales with demonstrated validity and reliability as measures of general desire for control and desire for control within health-related contexts. Despite alterations made to the original items, it is imperative that the reader notes that remaining items are not presented as a completely original instrument. Desire for control in childbirth is not a new construct; rather, items were simply changed to ensure that the construct of desire for control was correctly operationalized to capture the unique characteristics of labor and birth. Thus, the DCCh-B is a *different* scale from that which it was derived, but it is not an *original* scale or construct. The KHOS,

the Burger Desirability for Control Scale, and the DCON should always be referenced when referring to the new DCCh-B.

Limitations

This study was the first step in development of a measure of desire for control in the childbirth environment. As such, there were a number of limitations. The first and most serious limitation pertains to sampling procedures. Despite the advantage that online and clinic groups allowed for greater variability in responses, other group differences introduce possible confounds. It cannot be assumed, for instance, that women who completed the survey during leisure time (possibly in private) would have responded the same way if they had completed it at their physician's office. Women may think and feel differently about their upcoming childbirth when sitting at home than when sitting in a medical facility. It is also important to note that most of the clinic participants experienced face-to-face contact with the study investigator. The investigator was introduced online via written personal greeting; however, there is no way to replicate the face-to-face interaction that took place in the clinics. Finally, there may also be differences created by the mode of responding: computer versus paper-pencil. In general, it was determined that the benefit of using both groups in terms of timeliness to achieve the desired sample size and in terms of obtaining the highest possible variability of responses outweighed these concerns.

Additional limitations pertain to information that was not included on the Pregnancy Information Questionnaire. For instance, participants were not asked to report gestational length, smoking status, or to report on frequency or type of

exercise. The questionnaire also did not contain a comprehensive list of illnesses known to increase pregnancy risk. Expanding the Pregnancy Information Questionnaire to include other important health questions will be important to the next phase of the study.

Recommendations for Development of the DCCh-B

Future scale development will include questions that could further support the validity of the DCCh-B. For instance, participants will be asked to report gestational length because it is probable that women's desire for control would change throughout the course of pregnancy. Desire for control would be expected to be inversely correlated with health behaviors such as smoking, and positively correlated with protective health behaviors such as exercise and monitoring one's diet to limit exposure to harmful teratogens. Questions pertaining to experience of chronic illness will be expanded to include diagnoses such as neurological disorders (e.g. seizures, MS), asthma or other pulmonary disease, and cardiovascular disease. A more thorough health history will shed light on the relationship between illness/complications during pregnancy and desire for control. The next round of data collection will also include questions designed to identify women who express high desire for control by selecting more intensive medical procedures such as labor induction or planned cesarean.

Finally, the next step in scale development will focus on refining the existing items. The current study identified 21 items that assess a woman's desire for control in her childbirth environment. An important next step in the development of this scale

is determining whether all 21 items are actually necessary to assess desire for control. Selection of the final items will be made based on a number of criteria including a) factor loadings b) retention of positively and negatively worded items and c) item reading level. The current study examined preliminary data for the scale: future analyses will winnow down the 21 items to a final 10-item scale.

The items will be administered again to a large sample of pregnant women. Multiple sampling sources will be utilized in the next study, with the recommendation that the number of clinic participants more closely approximates the number of online participants. Finally, future studies will also examine the items that loaded on the second factor (mostly likely representing desire for information) to determine if they might be an appropriate subscale.

Conclusions

Practical Utility of the DCCh-B. Not surprisingly, the distribution of scores in our sample tell us that most patients probably desire some degree of control during childbirth, or at least have some preferences for how and when procedures are performed. However, some individuals have stronger preferences than others. Understanding these differences is important to maternity health care practice as well as understanding how control influences childbirth satisfaction.

In clinical settings, a score on the DCCh-B could be used to inform physicians, nurses and midwives about how each patient views her involvement in the medical management of the childbirth process. Is control important to her? Are medical decisions likely to be overwhelming if she alone is responsible for making

them? A measure that takes a patient fewer than 5 minutes to complete may communicate what otherwise requires a lengthy conversation. Ideally, a patient's responses would be used to guide a conversation regarding her preferences.

Childbirth Satisfaction: The Broader Context. Desire for control in the childbirth environment may be most useful in the broader context of a model designed to predict childbirth satisfaction. Upon the final development of the DCCh-B scale, future studies should explore a congruence model of control as a predictor of maternal satisfaction with the childbirth experience, as outlined in Figure 1. This research will fill important gaps in childbirth literature.

For instance, extant literature does not provide an operational definition of maternal satisfaction with childbirth. Satisfaction in childbirth can be thought to reflect the degree of match between an individual's unique criteria and the cognitive judgments of external conditions (see Pavot & Deiner, 1993). However, research on childbirth satisfaction lacks a single, widely used, psychometrically sound measure derived from a theoretical understanding of childbirth satisfaction (Green, Coupland, & Kitzinger, 1990; Humenick, 1981; Knapp, 1996; Koehn, 1992; Kyman, 1991; Quine et al., 1993; Seguin, Therrien, Champagne, & Larouche, 1989; Waldenstrom, 1999). In the context of labor and delivery, perceived control can be operationalized as the extent to which the birthing woman believes her actions influence her childbirth environment and experience. As with desire for control, measuring perceived control in the childbirth experience requires a situation-specific instrument.

Future studies should focus on developing a psychometrically sound measure of perceived control in childbirth that can be used in conjunction with the DCCh-B.

As shown in Figure 1, control congruence represents only one pathway to childbirth satisfaction. A comprehensive understanding of childbirth satisfaction would require that control congruence be examined in the context of other important variables such as social support, expectations regarding pain management, and the quality of the caregiver-patient relationship. It will be important to examine the relationships of these factors to medical variables including delivery method, complications, length of labor, and specific outcome variables including 1- and 5-minute Apgar scores. A final comprehensive biopsychosocial model of maternal satisfaction with childbirth will have great utility in improving women's childbirth experiences and overall maternal health.

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Appendix A

Pregnancy Information Questionnaire

Below you will find several items. Please answer them honestly and to the best of your ability.

What is Your Age?_____

Are You:

_____ Married/Living with Partner

_____ Separated/Divorced

_____ Widowed

_____ Never Married

You Consider Yourself (Check all that apply):

_____ Asian/Asian American or Pacific Islander

_____ African American

_____ Caucasian

_____ Hispanic

_____ Native American/Alaska Native/American Indian

_____ Other: _____

What is the highest level of education that you have completed?

_____ High School Diploma or GED

_____ Some College

_____ College Degree

_____ Some Graduate School

_____ Graduate/Professional Degree

_____ Trade School

Counting your current pregnancy, how many times have you been pregnant?

_____

How many times have you given birth? _____

How many children do you have?_____

Have you attended childbirth preparation classes?

_____ Yes

_____ No

_____ Not Yet

What kind of preparation classes have you attended?

_____ Bradley Method

_____ Lamaze

_____ General Childbirth Preparation (i.e. through hospital or birth center)

_____ Other: _____

Who do you see for regular prenatal care? Do you have a doctor or midwife you see regularly for prenatal care?

_____ OB Doctor

_____ Midwife

_____ Combination

_____ Family Practice Doctor

Do you plan to have additional support during labor such as a trained professional, midwife, or doula?

_____ Yes

_____ No

_____ Don't Know

In general, would you say your health is:

_____ Excellent

_____ Very Good

_____ Good

_____ Fair

_____ Poor

In general, how would you describe your attitude about your current pregnancy?

_____ Extremely Negative

_____ Somewhat Negative

_____ Neutral

_____ Somewhat Positive

_____ Extremely Positive

In general, describe your physical experience during the pregnancy:

_____ Extremely uncomfortable

_____ Somewhat uncomfortable

_____ Fair

_____ Mostly Comfortable

_____ Extremely Comfortable

Are you expecting twins or multiples?

_____ Yes

_____ No

_____ Don't Know

Is your baby presenting in a breech or transverse position?

_____ Yes

_____ No

_____ Don't Know

Have you experienced or are you currently experiencing any medical difficulties/complications with your pregnancy?

_____ No

_____Yes

If yes please describe:_____

Check any health conditions that apply:

_____ High blood pressure

_____ Anemia

_____Pregnancy-induced high blood pressure

_____ Hypothyroidism

_____ Diabetes

_____None of these

Where do you plan to give birth?

_____ Hospital

_____ Home

_____ Birth Center

Other: _____

Appendix B

Krantz Health Opinion Survey

Information Subscale

1. I usually don't ask the doctor or nurse many questions about what they're doing during a medical exam.
2. I'd rather have doctors and nurses make the decisions about what's best than for them to give me a whole lot of choices.
3. Instead of waiting for them to tell me, I usually ask the doctor or nurse immediately after the exam about my health.
4. I usually ask the doctor or nurse lots of questions about the procedures during a medical exam.
5. It is better to trust the doctor or nurse in charge of a medical procedure than to question what they are doing.
6. I usually wait for the doctor or nurse to tell me the results of a medical exam rather than asking them immediately.
7. I'd rather be given many choices about what's best for my health than to have the doctors make the decisions for me.

Behavioral Involvement Subscale

8. Except for serious illness, it's generally better to take care of your own health than to rely on professional help.
9. It is better to rely on the judgments of doctors (who are the experts) than to rely on "common sense" in taking care of your own body.
10. Clinics and hospitals are good places to go for help since it's best for medical experts to take the responsibility for health care.
11. Learning how to cure some of your own illness without contacting a physician is a good idea.
12. It's almost always better to seek professional help than to try to treat yourself.
13. Learning how to cure some of your own illness without contacting a physician may create more harm than good.
14. Recovery is usually quicker under the care of a doctor or nurse than when patients take care of themselves.
15. If it costs the same, I'd rather have a doctor or nurse give me treatments than to do the same treatments myself.
16. It is better to rely less on physicians and more on your own common sense when it comes to caring for your body.

Appendix C

Desirability for Control Scale

1. I prefer a job where I have a lot of control over what I do and when I do it.
2. I enjoy political participation because I want to have as much of a say in running government as possible.
3. I try to avoid situations where someone else tells me what to do.
4. I would prefer to be a leader than a follower.
5. I enjoy being able to influence the actions of others.
6. I am careful to check everything on an automobile before I leave for a long trip.
7. Others usually know what is best for me.
8. I enjoy making my own decisions.
9. I enjoy having control over my own destiny.
10. I would rather someone else take over the leadership role when I'm involved in a group project.
11. I consider myself to be generally more capable of handling situations than others are.
12. I'd rather run my own business and make my own mistakes than listen to someone else's orders.
13. I like to get a good idea of what a job is all about before I begin.
14. When I see a problem, I prefer to do something about it rather than sit by and let it continue.
15. When it comes to orders I would rather give them than receive them.
16. I wish I could push many of life's daily decisions off on someone else.
17. When driving, I try to avoid putting myself in a situation where I could be hurt by another person's mistake.
18. I prefer to avoid situations where someone else has to tell me what it is I should be doing.
19. There are many situations in which I would prefer only one choice rather than having to make a decision.
20. I like to wait and see if someone else is going to solve a problem so that I don't have to be bothered with it.

Appendix D

Desire for Control of Health Care Scale (DCON)

1. I want to have a say in what will be done to me.
2. I want the doctors and nurses to decide what is best for me.
3. I want to know in advance which procedures will be used.
4. I want to influence the kind of care I get.
5. I do not want to know in advance what the procedures will feel like.
6. I want to know what the procedures will do to me.
7. I want to have a say in what procedures I will get.

Appendix E

General Self-Efficacy Scale

Below are ten items that you may agree or disagree with. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responses.

- 7 – Strongly Agree
- 6 – Agree
- 5 – Slightly Agree
- 4 – Neither agree nor disagree
- 3 – Slightly disagree
- 2 – Disagree
- 1 – Strongly disagree

_____1. I can always manage to solve difficult problems if I try hard enough.
_____2. If someone opposes me, I can find the means and ways to get what I want.
_____3. It is easy for me to stick to my aims and accomplish my goals.
_____4. I am confident that I could deal efficiently with unexpected events.
_____5. Thanks to my resourcefulness, I know how to handle unforeseen situations.
_____6. I can solve most problems if I invest the necessary effort.
_____7. I can remain calm when facing difficulties because I can rely on my coping abilities.
_____8. When I am confronted with a problem, I can usually find several solutions.
_____9. If I am in trouble, I can usually think of a solution.
_____10. I can usually handle whatever comes my way.

Appendix F

MHLC Form C

Instructions: Each item below is a belief statement with which you may agree or disagree. Please respond to these items as they relate to your condition during labor and delivery, either past or future. Beside each statement is a scale, which ranges from strongly disagree (1) to strongly agree (6). For each item indicate the number, which represents how much you agree with it in the space preceding the item. Please make sure that you answer **EVERY ITEM** and that you mark **ONLY ONE** number per item. This is a measure of your personal beliefs; obviously, there are no right or wrong answers.

- 6 – Strongly agree
- 5 – Moderately agree
- 4 – Slightly agree
- 3 – Slightly disagree
- 2 – Moderately disagree
- 1 – Strongly disagree

_____1. If complications arise during labor, it is my own behavior which determines whether the birth will turn out well.
_____2. As to my labor and delivery, what will be will be.
_____3. If I see my doctor regularly during pregnancy, I am less likely to have problems with my labor and delivery.
_____4. Most things that will affect my labor and delivery will happen to me by chance.
_____5. If complications arise in my labor and delivery, I should consult a medically trained professional.
_____6. I am directly responsible for my labor and delivery going well or poorly.
_____7. Other people play a big role in whether my labor and delivery go well or go poorly.
_____8. Whatever goes wrong with my labor and delivery is my own fault.
_____9. Luck plays a big part in determining how well my labor and delivery go.
_____10. In order for my labor and delivery to go well, it is up to other people to see that the right things happen.
_____11. However well my labor goes is largely a matter of good fortune.
_____12. The main thing which affects my labor and delivery is what I myself do.
_____13. I deserve the credit if my labor and delivery go well and the blame if they go poorly.
_____14. Following doctor's orders to the letter is the best way to keep my labor and delivery from going poorly.

_____15. If there are complications during my labor and delivery, it's a matter of fate.
_____16. If I am lucky, my labor and delivery will go well.
_____17. If my labor and delivery take a turn for the worse, it is because I have not been taking proper care of myself.
_____18. The type of help I receive from other people determines how well my labor and delivery go.